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A NON-TECHNICAL EXPLANATION OF THE INDEX OF GENERAL BUSINESS CONDITIONS

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I. MEASURING AND FORECASTING GENERAL BUSINESS CONDITIONS

A FULL explanation of the data and methods used in constructing our index of general business conditions was given in THE REVIEW OF ECONOMIC STATISTICS for January and April 1919. That explanation should be consulted by readers of the REVIEW who want information concerning the technique or details of the construction of the index. The majority of readers, however, are interested in results rather than in methods or technical details. The explanation which follows is designed to meet the needs of such readers. Although the explanation is non-technical, it is nevertheless complete and it is intended to give a statement sufficient for an understanding of our index.

Our index of general business conditions is derived from those series of monthly items of the industrial, commercial, and financial statistics which ordinarily serve as the basis for judgments concerning the fundamental speculative, business, and banking situation. Measurement of business activity, however, is relative to some standard. Isolated items of statistical series, upon which such a measure must be based, can have no significance by themselves. Only by a comparison of items over a period of time can we ascertain their meaning. Items pertaining to widely separated periods cannot, however, be used in their crude form. Each monthly item of bank clearings, pig-iron production, interest rates, and the like, is a composite, the make-up of which depends on the year and season. That is, various elements contribute to make bank clearings for January 1920, for instance, the precise total reported. In general the actual items result from the combination of four elements — secular trend, seasonal variation, cyclical fluctuation, and a residual factor.

The *secular trend* is the regular increase or decrease, according to some principle, over the whole period under consideration. For most series it is a growth element, dependent upon population and the development of industry. There is a normal change year after year in a developing or altering industrial society, just as there is a normal change in the physical or mental status of a growing child. As used in this exposition, the expression " secular trend " may refer either to a statistical series or to one item of a series. When it refers to a series it means the straight line fitted to the data; the measure of growth is given by the slope of the straight line. When the expression refers to one item of a series it designates the vertical distance (or its numerical value) from the curve or line of trend to the zero base line.

The *seasonal variation* is the movement of the items within the year, which we attribute to the round of the seasons. There is a seasonal change in various lines of business activity just as there is a seasonal change in temperature or rainfall. Although an iron-clad system is not to be expected, the movement of the items, to be seasonal, must be systematic year after year. The seasonal variation of an item for any month is given by an index which expresses the " normal " for that month as a percentage of the monthly average for the year.

The *cycles* are the undulating curves, or numerical values, secured by removing from the actual items the secular trend and the seasonal variation, and expressing the results in terms of comparable units.[1] The actual figures thus corrected and expressed measure the rhythmic movement of business, the ebb and flow corresponding to depression and prosperity.

The *residual element* includes all sporadic developments which affect individual series, or widespread changes due to momentous occurrences, such as wars or national catastrophes, which affect a number of series simultaneously. Thus pig-iron production may take a sudden slump if a strike occurs, railway gross earnings may drop because of unusual storms or floods; trading on the stock exchange may be greatly affected by a court decision. The continuity of nearly all series was interrupted by the outbreak of the Great War. This irregular or residual element has not been eliminated by our process of correcting the data and hence it is present, along with the cyclical fluctuation, in the statistics used in constructing our Index.

In order to adapt the statistical data to our purpose, the securing of a numerical measure of the ebb and flow of business, two problems were solved; first, we devised a method of correcting the statistics for secular trend and seasonal fluctuations; that is, we unraveled the tangle of elements which constitute the fluctuations in fundamental series. In other words, we devised a method whereby the actual series of business statistics now published in our trade and financial journals were set forth in such a form as to be significant and reliable indices of business conditions. Second, having corrected the various series of fundamental statistics for secular trend and seasonal variation, it was necessary to solve another statistical problem. The corrected series have wave movements; for all corrected series the elapsed periods from crest to crest or trough to trough are approximately the same. The *times*, however, at which crests or troughs of the waves of the several series occur are frequently not the same. Nevertheless, there are *groups* of series in which the wave movements are simultaneous. In order to get the information which the statistical series have to give, it was necessary to sort them according to the times at which points of maxima or points of minima are reached, that is, it was necessary to sort the series in order of the sequence of their fluctuations. The solution of the problems just stated gave us an index which measures the general business conditions of the past.

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[1] The units used are the standard deviations of the respective series. The standard deviation is an average which is so constructed that it varies directly with the dispersion of the items. See p. 41. The cycles are the " percentage deviations of actual items from secular trend corrected for seasonal variation " divided by the " standard deviation."

In order to use the conclusions thus obtained as a basis for forecasting the future, there is another requirement. The past is not exactly like the present and future; it is only more or less similar. A statistical measure based upon the past may be used in the present and future only in so far as the underlying economic conditions of the past are similar to those of the present and future. An index of general business conditions can be safely used in forecasting general business conditions only when the present is shown to be similar to the past in all essential elements or when allowance is made for such differences as occur. Therefore, for forecasting on the basis of the indices of general business conditions obtained from the data of the past, a supplementary economic analysis is necessary. For instance, at the present time — in February 1920— any forecast, to inspire confidence or even to command respect, must allow for the changes in our banking system since 1915, the recent change of the United States from being a debtor to being a creditor nation, and the destruction and shortage of materials caused by the war.

SUMMARY

Our method of forecasting, therefore, is based upon *statistical analysis* supplemented by *economic analysis.*

The *statistical analysis* requires, first, the correction of the actual statistics so that the corrected figures will show the ebb and flow of business prosperity and depression, and second, the determination of the order of occurrence of the cyclical movements of the corrected series.

The *economic analysis* requires a careful examination of the underlying economic structure of the present and past. Any forecast made on the basis of the index of general business conditions, which is the result of the statistical analysis, must allow for the differences in underlying conditions as revealed by the economic analysis.

II. EXPLANATION OF CORRECTED STATISTICS

The object of correcting the actual data is to secure comparable items over a period of time that reveal the fluctuations of the business cycle. The need of eliminating secular trend and seasonal variation from statistical series before attempting to employ them as indices of business conditions, as well as the method which we have used in such elimination, may be made clear by a simple illustration. Our purpose is to judge the significance of items for different dates. Let us take the production of pig iron in the United States at any three dates some distance apart from each other. The tonnage of pig iron produced in the United States in March 1904 was 1,447,000, the tonnage in February 1908 was 1,077,000, while the tonnage in December 1918 was 3,434,000. Which one of these figures indicates the greatest relative activity of the iron industry, relative, that is, with respect to the facilities of the industry at the time in question ? To answer this question we must take account of the fact that the country and the iron industry have grown in the interval from March 1904 to December 1918. It is obvious that if the growth were by equal monthly increments, a " normal " of 1,528,000 tons in March 1904, for instance, would not be normal in 1908 or 1918. On the assumption of uniform growth the normal of February 1908 would be 1,901,000 tons, and that of December 1918 would be 2,932,000 tons. The actual production figures for the three months are 1,447,000 tons, 1,077,000 tons, and 3,434,000 tons, respectively. The ratios of the actual figures to the corresponding " normal " figures are 95 per cent, 57 per cent, and 117 per cent, respectively. Omitting the percentage signs, the figures just given are termed indices. They are indices of pig-iron production so constructed, by the use of bases increasing with time, that the normal growth, or " secular trend," is eliminated.

But there is another type of fluctuation which must be removed before the figures may be used as indices of business conditions. We must remove from the data those variations which are purely seasonal in character, which recur year after year as a consequence of the round of the seasons. If we could assume that the conditions of all the months of the year are alike, that there is no characteristic and recurrent variation which regularly differentiates the item for March from that for February or December, then we could legitimately compare the indices 95, 57, and 117. But the iron industry is seasonal in character. Just as a normal production for 1904 is not normal for 1918, so, within any year, a " normal " production for March is not normal for February or December. If we represent the average monthly production for any year by 100, the production for March, February, and December would be represented by 106, 94, and 100, respectively. Consequently, the seasonal indices 106, 94, and 100 should be subtracted from the indices of 95, 57, and 117, found above, in order to get significant figures for comparison. The differences are -11, -37, and $+17$. These differences are " percentage deviations of original items from secular trend corrected for seasonal variation." They are comparable with each other; and they measure the relative activity (with respect to existing equipment) of the iron industry in March 1904, February 1908, and December 1918. The deviations reveal the depression in March 1904, the deep depression of February 1908, and the great activity of December 1918. These deviations become still more significant when we compare them with others computed in the same manner for the period 1903–18. The months of deepest depression in the period were December 1904 (− 44), January 1904 (− 38), January to June 1908 (ranging from − 37 to − 44), November and December 1914 (− 40 and − 41). The months of greatest activity were March 1905 to October 1907 (ranging from + 9 to a maximum of + 26 in July 1907), August 1909 to April 1910 (ranging from + 12 to + 27), and September 1915 to December 1918 (ranging, with five exceptions, from + 10 to + 24). Negative deviations of − 14 and − 13 occurred in January and February 1918, as exceptional items in a series of forty positive deviations. They were undoubtedly caused by the severity of the winter, the railroad tie-up, and the fuel difficulties of the months in question. December 1917 (+ 2) and March 1918 (+ 6) were also low.

The individual items of the various series were thus corrected for secular trend and seasonal variation and the first part of our statistical problem was solved. The second part of the statistical problem was to compare the various series with each other in order to ascertain the sequence of fluctuations.

In order to make a legitimate comparison of the fluctuations of the various series with each other, such series were expressed in terms of proper units selected with reference to the problem in hand. Some of the series were much more variable than others, that is their upward and downward fluctuations were more frequent and more extensive. Railroad gross earnings fluctuated between 10 per cent below and 10 per cent above normal; while the number of shares traded on the New York Stock Exchange fluctuated between 50 per cent below and 60 per cent above. Evidently a common measure of variability was needed, in terms of which each of the series might be expressed in such a manner as to make their fluctuation on the chart strictly comparable. The measure adopted was the "standard deviation" — the most widely used index of variability. This is an average depending upon all of the items and varying directly with the dispersion of the items; the wider the dispersion of the items the greater is the standard deviation. By using the standard deviation we are able to make a legitimate comparison between such widely different series as pig-iron production and rates on commercial paper; its use obviates the arbitrary selection of units — always a questionable procedure — for making graphic comparisons of series.

Graphic illustrations of the method of correcting the various series and getting them into shape for comparison are given by the charts on pages 42–44, presenting the monthly tonnage of pig iron produced in the United States, the monthly rate of interest on sixty-to-ninety day commercial paper in New York, and Bradstreet's monthly index of commodity prices, all covering the period 1903–20. Charts 2, 4, and 14 present, first, the actual data by open points; second, the long-time or secular movements of the series by the dot-dash lines; third, the cyclical movements by the heavy curved lines; and fourth, the seasonal variations by the inserts. Charts 102, 104, and 114 present the three series just named corrected for secular trend and seasonal variation. The units used are the respective standard deviations. The method and results of comparing the various corrected series will be explained in the following section.

III. THE SEQUENCE OF FLUCTUATIONS

The corrected series which we have termed cycles are expressed in proper units for comparison. Three of the series are presented graphically in charts 102, 104, and 114. These curves were drawn originally on translucent paper so that they could be compared with each other according to the method indicated by charts A and B,[1] and 114 and 122, and 114 and 118.[2] It was found that the various series fell into three distinct groups when arranged in order of sequence of fluctuations.[3] The series which fluctuate first, either upward or downward, are all series depending upon speculation, such as the average price of ten railroad bonds, the average price of industrial stocks, the average price of railroad stocks, the volume of sales on the New York Stock Exchange, and New York clearings. This is the speculative group. The series in which the fluctuations follow or lag behind, in point of time, the fluctuations of the speculative group all have to do with business and industrial activity, such as pig-iron production, bank clearings outside New York City, Bradstreet's indices of commodity prices, and the index of commodity prices of the Bureau of Labor Statistics. These series constitute the business group. The series which fall into a third group and whose fluctuations lag behind those of the business group all have to do with banking conditions and the money market. These series are rates on commercial paper, and loans, deposits, and reserves of New York banks. We therefore have three homogeneous groups of series — the speculative group, the business group, and the banking group.

The arrangement of the series according to the order in which fluctuations occurred was based upon a comparison of the entire curves for the period 1903–14. The sequence of fluctuation of the various series, however, during the period including the panic of September to October 1907, was nearly the same as that for the entire period 1903–14. On page 33 of this Review is given a list of nineteen series, arranged in order of fluctuations during the period including the panic of September to October 1907.

It is legitimate to average the series of each of the three groups because the fluctuations of the series in the respective groups are similar.[4] The three averages are

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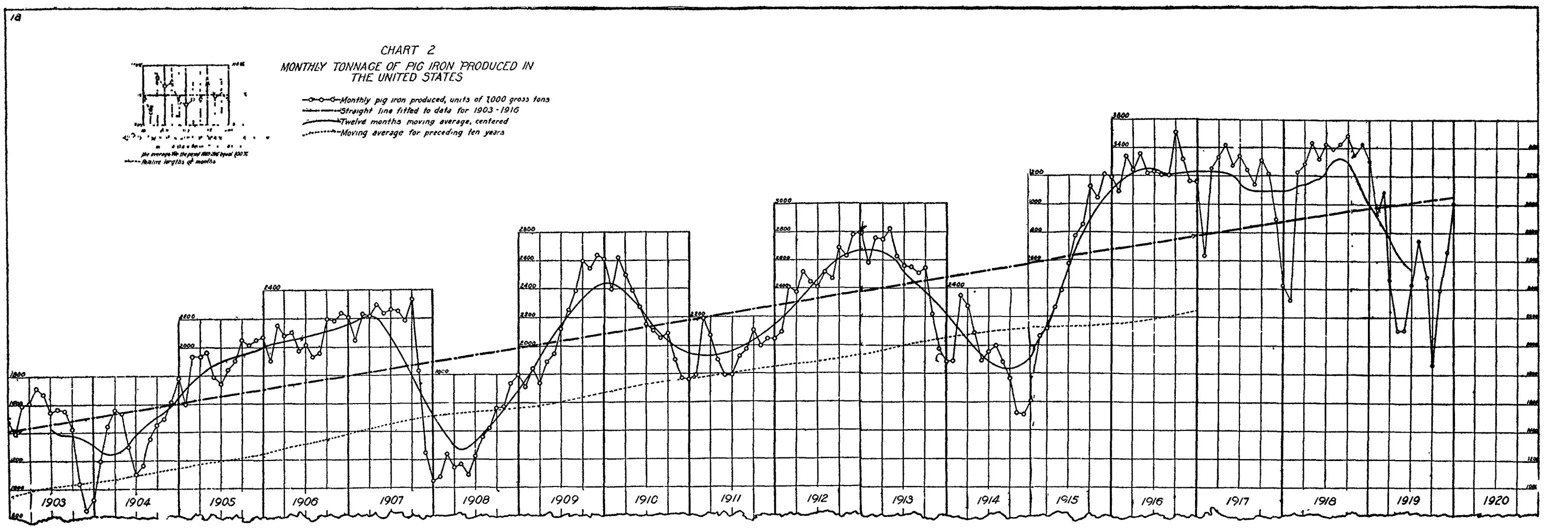
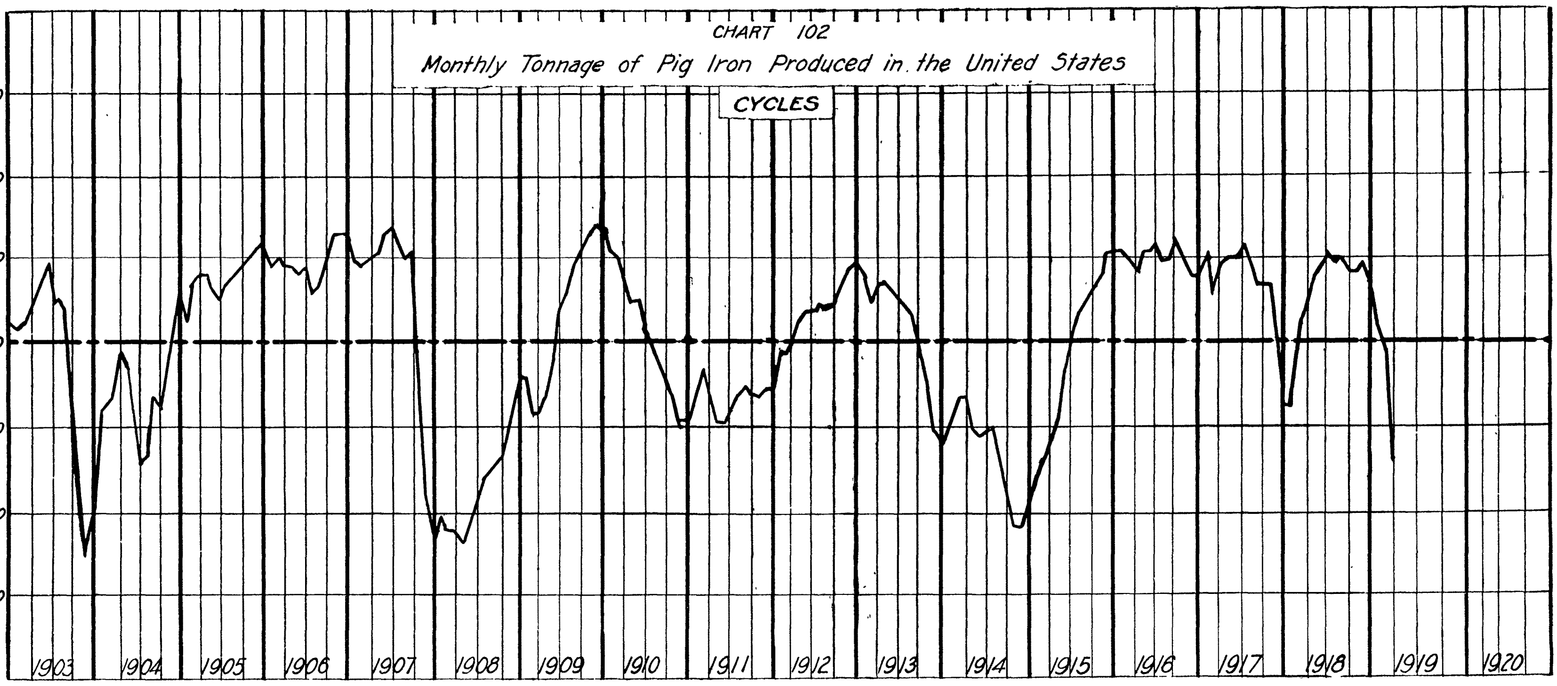
[1] Taken from the April Review, pp. 120, 121.

[2] Taken from the August Supplement, pp. 110, 111.

[3] In addition to the comparison of each series with every other by three observers, numerical measures of correlation were computed as explained in the Review, April 1919, pp. 182–187.

[4] In averaging the series of the third group, however, the algebraic signs of the items entering the series for loans and deposits and reserves were reversed in combining the last named series with the interest rate series. As rates on commercial paper go up the volume of loans goes down. The systematic manner in which this relation was maintained during the period 1903–04 is shown by charts 114 and 122 on page 45.





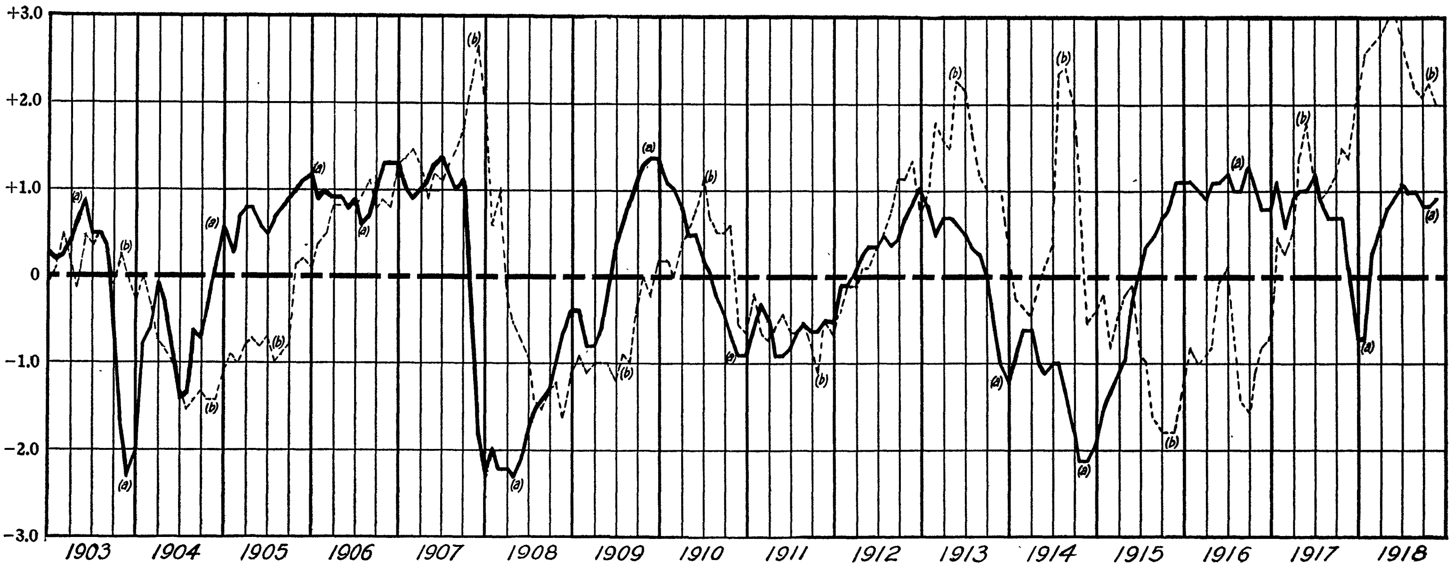
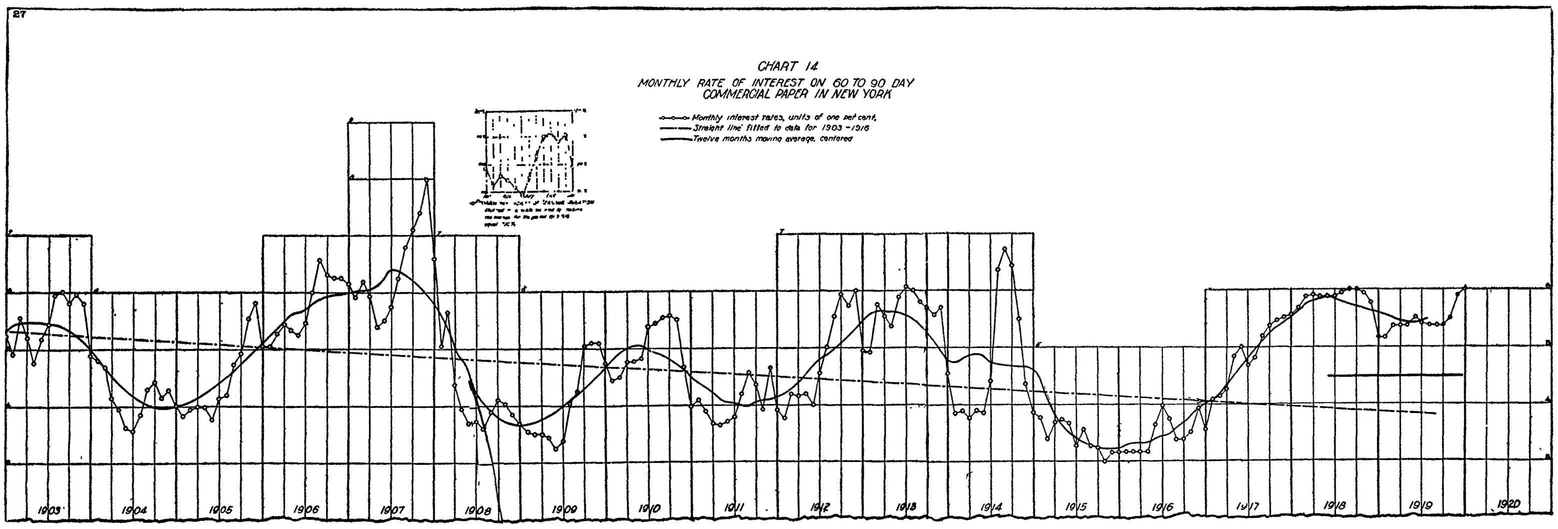
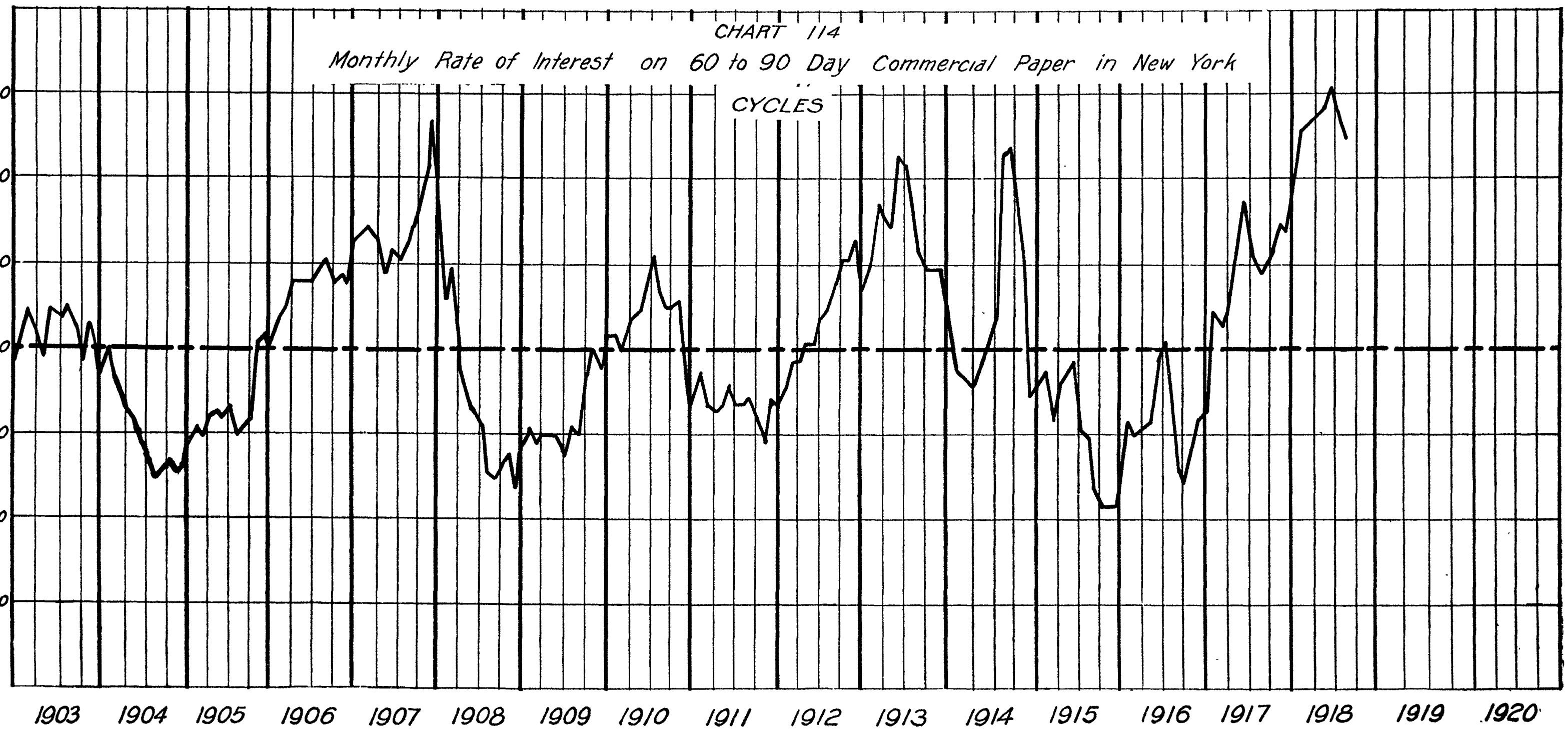


Chart A. — Comparison of cycles of (*a*) monthly tonnage of the production of pig iron in the United States, and (*b*) monthly rate of interest on sixty-to-ninety day commercial paper in New York, 1903–18.





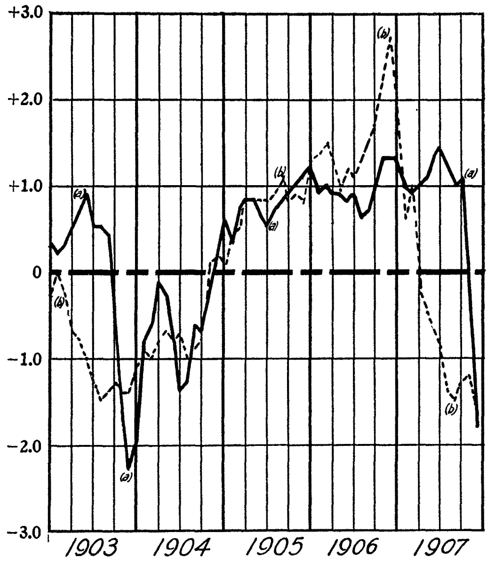


Chart B.—Comparison of cycles of (*a*) monthly pig-iron production and (*b*) monthly interest rate of one year later, 1903–07 (dates refer to pig-iron production).

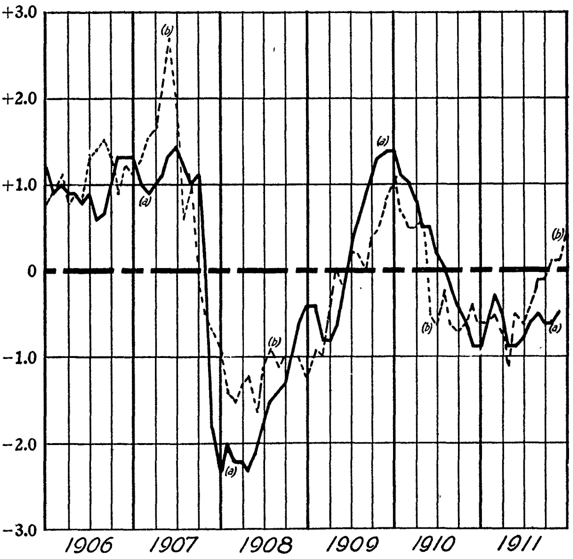


Chart B. — Comparison of cycles of (*a*) monthly pig-iron production and (*b*) monthly interest rate of six months later, 1906–11 (dates refer to pig-iron production).

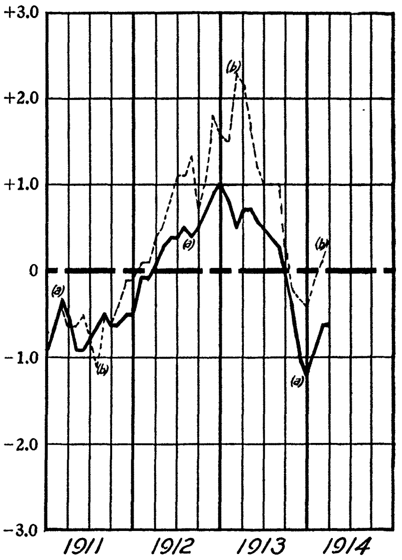
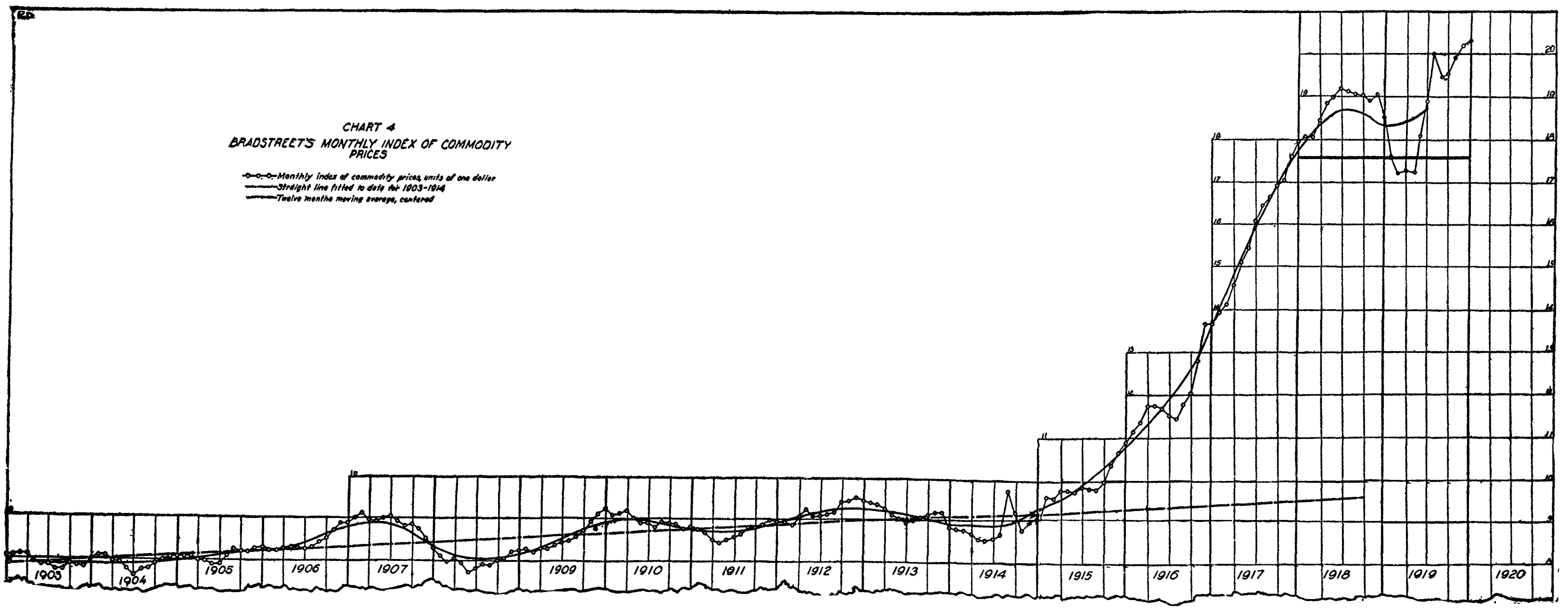
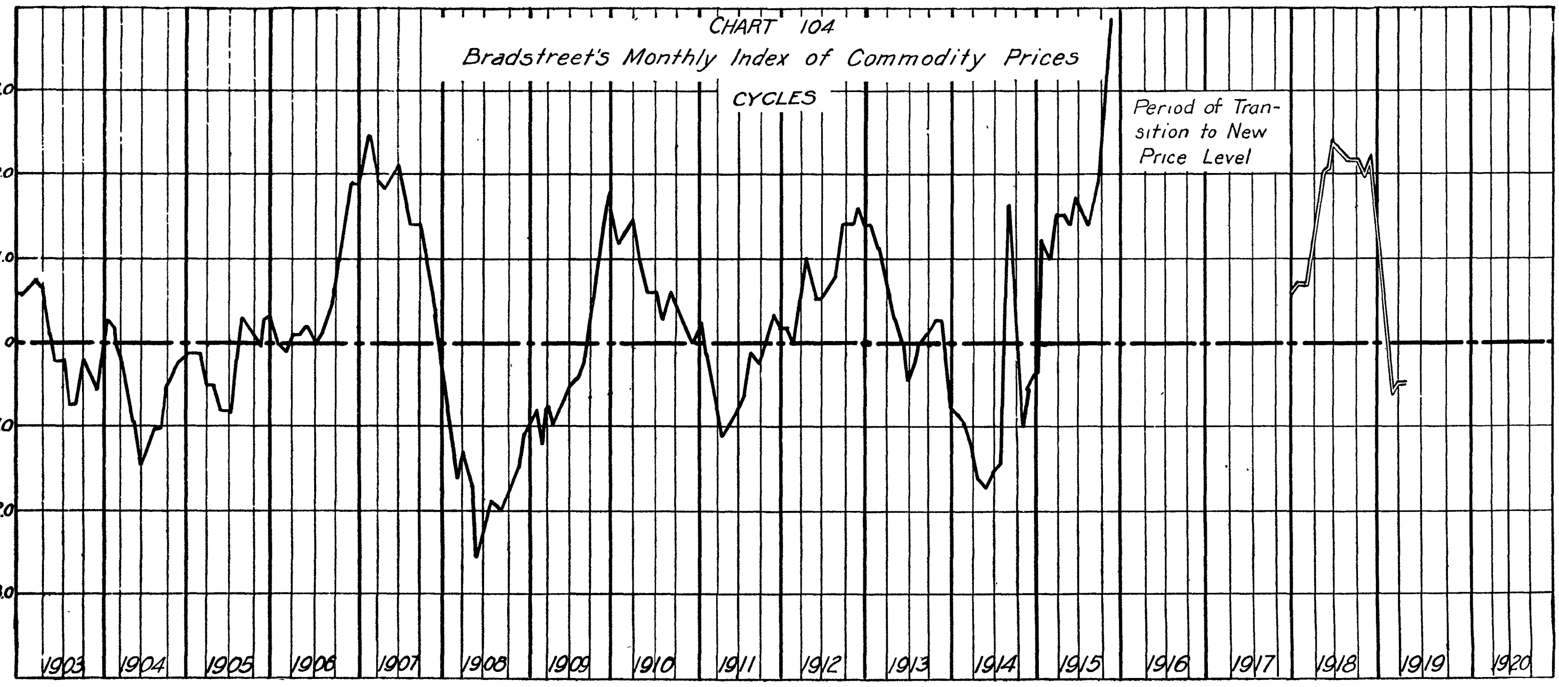


Chart B. — Comparison of cycles of (*a*) monthly pig-iron production and (*b*) monthly interest rate of three months later, Jan. 1911–April 1914 (dates refer to pig-iron production).





presented graphically on pages 31, 32. It will be noticed that each average contains two classes of series — one class representing volume, the other, price of (A) securities, (B) commodities, or (C) loans, as follows:

Group A — Speculation is based upon (1) the volume of speculation represented by New York bank clearings, and shares sold on the New York Stock Exchange, and (2) prices of bonds, industrial stocks, and railroad stocks.

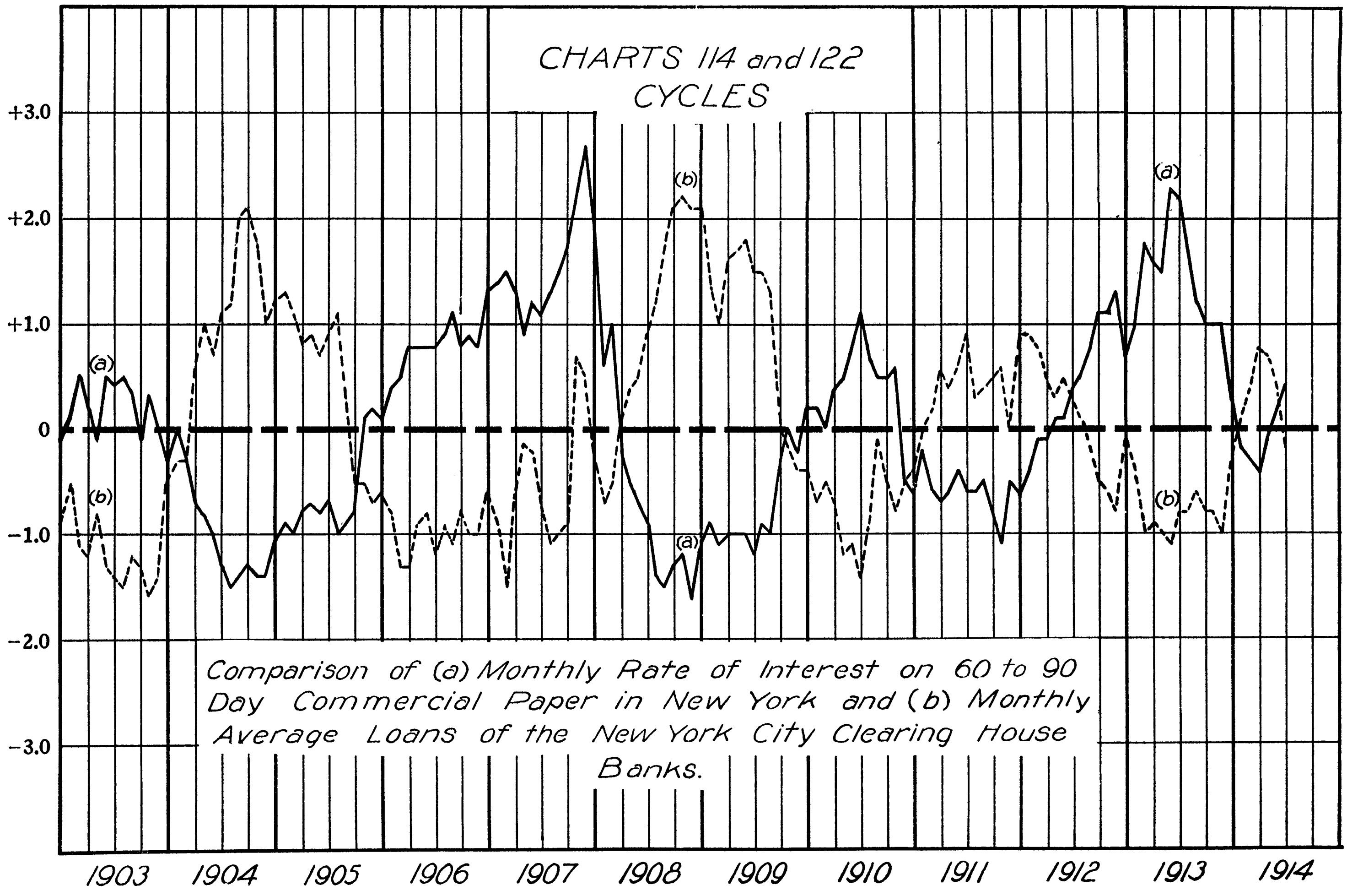
Group B — Business is based upon (1) the volume of commodities produced and exchanged, such as pig-iron production, outside clearings, imports of merchandise, and gross earnings of railroads, and (2) the prices of commodities.

Group C — Banking is based upon (1) the volume of credit extended as indicated by loans, deposits and reserves of New York banks, and (2) the price of such credit as indicated by the rates on commercial paper.

The charts presenting the averages of these three groups of series are our index charts of general business conditions, given for the period 1903–14 on pages 30, 31 and for the period November 1918 to January 1920 on page 29 of this REVIEW.

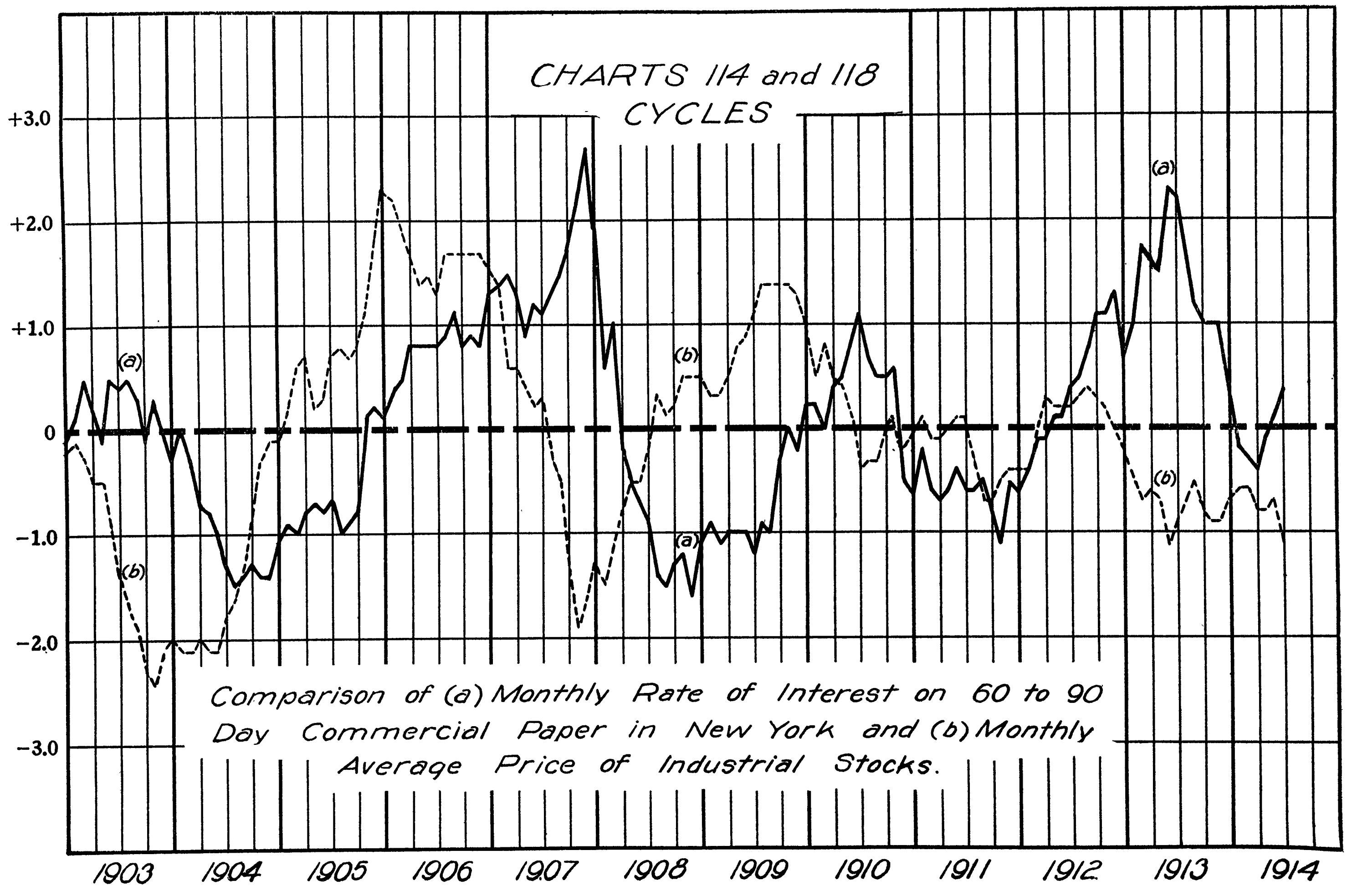
IV. THE INDEX CHART, 1903–14

It will be seen that the shaded line, which represents speculation, forecasted very accurately all the major movements of the solid line which represents business activity, during the period covered by the chart. Thus at the opening of 1903 the shaded line shows a downward movement of speculation, which had probably set in before the opening of that year; while the solid line has not yet begun to move in a downward direction. During March to April 1903, the solid line begins to follow the shaded line downward, and it continues to fall, with only a partial recovery at the end of 1903, until the middle of 1904 when it reaches its lowest point on this movement. Meanwhile speculative activity, as reflected by the shaded line, has begun to recover from the depth of the depression of 1903. It reached its lowest point in the fall of 1903, and then began to move very slowly upward. In July to August 1904, the shaded line begins to move upward very rapidly, reflecting the speculative activity which culminated in the year 1906. Beginning in the middle of 1904, the solid line moves sharply upward, following the shaded



CHARTS 114 and 122
CYCLES

Comparison of (a) Monthly Rate of Interest on 60 to 90 Day Commercial Paper in New York and (b) Monthly Average Loans of the New York City Clearing House Banks.



CHARTS 114 and 118
CYCLES

Comparison of (a) Monthly Rate of Interest on 60 to 90 Day Commercial Paper in New York and (b) Monthly Average Price of Industrial Stocks.

line. Late in 1906, the shaded line, which had already receded somewhat from the high position reached at the beginning of the year, began to move rapidly downward. Business activity, represented by the solid line, continued to move upward until it reached the high level which it maintained during the first six months of the year 1907, while speculative activity, as indicated by the shaded line, was rapidly falling off, presaging the approach of the panic of 1907. By November of that year the panic had occurred and speculation was at a low-water mark. Business activity and commodity prices, as indicated by the solid line, had moved very rapidly downward from the high point at which they were maintained during the first half of the year. They continued to fall until the middle of 1908; but meanwhile speculative activity had begun to revive and the shaded line representing speculation crossed the price line again early in 1908. This was exactly what had happened in the middle of 1904. After 1908 the same general relationship between the shaded and solid lines continued to be maintained, even through such years as 1910, 1911, and 1912, in which the upward and downward movements in both speculation and business were much less marked than during the years 1904 and 1908.

The double line, which represents banking conditions, shows that at the opening of 1903 interest rates were high, bank reserves had been depleted, and the volume of bank loans had necessarily been reduced. This condition of financial strain was maintained until the end of 1903 when the " rich man's panic " occurred; then the double line started to follow the solid line downward. Banking conditions continued to get easier until the autumn of 1904 when, two months after the solid line had started to move upward, the double line followed suit. It will be seen that the banking curve was the last to decline in the crises of 1903 and 1907 and also was the last to recover. It will be observed, too, that the relationships which existed from 1903 to 1908 continued during the rest of the period covered by the chart.

The chart for the period 1914–18 has not been reproduced because this was a period of transition in which the normal relation previously existing between the various series was so greatly disturbed that the fluctuations have little or no bearing upon the present situation.

V. THE RATIONALE OF THE SEQUENCE OF FLUCTUATIONS

The established sequence of fluctuations of the three curves and the constitution of the groups upon which they are based enables us to explain the business cycle in economic terms. Examination of the Index Chart for 1903–14 shows clearly five recurrent phases in the business cycle, each phase occurring three times during the period from 1903 to 1913. The five phases are

I. Depression.
II. Revival.
III. Business prosperity.
IV. Financial strain.
V. Industrial crisis.

Each phase of the business cycle is distinguished by characteristic movements of speculation, of business, and of banking. The peculiar features of each phase together with the length of time each continued are set forth in the following table:

LENGTHS OF VARIOUS PHASES OF THE BUSINESS CYCLES DURING 1903–14

PHASE	Nov.-Dec. 1903 to Nov.-Dec. 1907	Jan.-Feb. 1908 to July-Aug. 1910	Sept.-Oct. 1910 to July-Aug. 1913
	Months	Months	Months
PHASE I: *Depression* .... (*a*) Low prices of securities and volume of speculation. (*b*) Declining commodity prices and business activity. (*c*) Declining rates on commercial paper and increasing bank reserves.	10	6	10
PHASE II: *Revival* .... (*a*) Revival of speculation in the securities markets and usually a strong bull market. (*b*) Recovery of business activity and increase of commodity prices. (*c*) Increase of rates on commercial paper and decrease of bank reserves.	18	14	12
PHASE III: *Business Prosperity* .... (*a*) Speculative activity is checked. (*b*) Business activity and commodity prices continue to increase. (*c*) Rates on commercial paper continue to increase and bank reserves to decrease.	10	4	8
PHASE IV: *Financial Strain and Liquidation of Securities*.............. (*a*) A strong bear market in securities and decrease in the volume of speculation. (*b*) The upward tendency of business activity and commodity prices is checked. (*c*) Rates on commercial paper remain high or stiffen and the banking situation is strained.	10	4	4
PHASE V: *Industrial Crisis and Liquidation of Commodities*................. (*a*) Prices of securities reach bottom and speculative markets are panicky. (*b*) Commodities are liquidated, prices fall, and business activity slumps badly. (*c*) Rates on commercial paper reach maximum and bank reserves reach minimum. The crisis breaks.	2	4	6
Total	50	32	40

The phases of business revival and activity (II, III, and IV) cover 38 months through the period leading up to the panic of September–October 1907. In the succeeding phases of business revival and prosperity the periods were shorter — 22 months and 24 months respectively. In each of the last named periods the liquidation was moderate and did not result in a panic.

The sequence of fluctuations and the interrelation between speculation, business, and banking during the various phases of the business cycle is as follows:

Starting with depression *phase 1*, we have as a legacy from the preceding period of liquidation: (*a*) low prices of securities and volume of speculation; (*b*) declining commodity prices and business activity; (*c*) declining rates on commercial paper and increasing bank reserves. This situation, which existed during the first half of 1904, for instance, paves the way for revival. The low volume of speculation and decreasing business activity have their correlative in rapidly falling rates for commercial loans. Rates presently decrease to a point which makes it profitable to purchase securities. In other words, securities selling at a very low price bring higher returns, even with depressed business, than the rate at which short-time money can be loaned. Idle funds, therefore, are drawn into the speculative market to purchase bonds and high grade stocks. As the speculative advance goes on, lower grade securities are purchased. With the upward movement of speculation we enter into the second phase of the business cycle. Increasing speculation is followed by increasing business activity. Funds at low rates are available to finance business, and consequently, an increase in business activity follows the advance in speculative activity. In *phase 2*, therefore, we have increasing speculation, increasing business, and increasing rates for short-time money following each other in the order named. Presently, however, the demands of speculation and business for funds cannot both be granted to the degree desired and we enter *phase 3*. Business is competing against speculation and speculation must give way. Manufacturers and dealers are the year-in-and-year-out customers of the banks and if shortness of funds makes discrimination necessary, the discrimination will be in favor of business men and against speculators. Funds are therefore withdrawn by banks from the speculative market to finance business men whose needs grow as commodity prices increase. The situation just described leads to *phase 4* of the business cycle, the chief characteristic of which is money strain. The drain of funds from security markets into business causes, as its immediate effect, high rates for collateral loans whether on call or time. The bull market in securities characteristic of phase 2, and the hesitation characterizing phase 3, is replaced by a bear market characterizing phase 4. Business activity continues during phase 4, absorbs the available funds, and low bank reserves continue. During this period and the preceding, there are many new business undertakings, some of which are sure to prove ill-advised. Credit has been extended by some banks on securities of doubtful value or on commodities at inflated prices. In other words, there are weak places in the business and banking structure which may give way upon the occurrence of some untoward event. With the occurrence of some such event, which causes loss of confidence, we pass into *phase 5*, which is characterized by more or less drastic liquidation in both security and commodity markets. If such liquidation takes place gradually we have a type of industrial crisis which is not spectacular. The liquidation may cover so short a time and be so drastic, however, that the crisis will be accompanied by a panic. In the case of gradual liquidation it is difficult to locate the exact time of the turning point. In the case of drastic liquidation it is possible to locate the turning point within narrow limits. Following the crisis, whether it be gradual or abrupt, there are cancellation of orders, closing of factories, unemployment, rapidly decreasing rates for loans, and increasing bank reserves. This is the period of business depression with its declining money rates and low security prices, with which we started.

This account of the business cycle, based upon our statistical analysis, revolves about the fluctuation of short-time interest rates, speculation, and business. We may think of interest rates as varying inversely with the amount of the bank reserves in the credit reservoir. The flow in the supply pipe to this reservoir depends upon the volume of gold imports, gold production, and the volume of paper currency. There are two outlets from this reservoir of credit: One pipe furnishes credit for speculation in securities; the other pipe is for the flow of credit into business. When the level of credit in the reservoir is high, and perhaps the outlet to business is partially clogged, the flow of funds into speculation begins. After this flow goes on for some time, however, and the flow into business increases, the level of credit in the reservoir falls. Obstruction is offered to the flow into speculative markets by the devices of higher interest rates and direct discrimination against speculation and in favor of business. The outlet into speculation therefore becomes clogged but the flow into business goes on. The level in the reservoir becomes still lower until the time is reached when bankers consider it dangerous to allow the outflow to continue. We then have a halt in further credit expansion, or to use our illustration, both outlets are clogged for a time and bank reserves are brought back to normal by allowing the supply to again fill the tank.

VI. THE INDEX — 1918 TO DATE

For the period 1914–18 the index of general business conditions appears to be valueless as a guide to present business developments. This was expected when it was constructed. The Great War and government control of industry dislocated economic conditions to such an extent that the normal relations which the index shows to have obtained in time of peace, could not fail to be disturbed, so that our chart (not here reproduced) shows for the period extending from 1915–18 nothing but the abnormal conditions resulting from the war. The fluctuations of the statistical series during the war were violent and apparently erratic. It is not likely that even the most careful study of the movements that prevailed during the period of the war will throw any light on the course of current fluctuations.

When the task of constructing an index of business conditions for the year 1919 was undertaken, three difficulties were faced: (1) many of the series of business statistics, such as imports, value of building permits, number of business failures, and railroad gross earnings were in the early months of 1919 still subject to influences of various kinds which made them temporarily of little use for our purpose; (2) some of the series of statistics, such as commodity prices and interest rates, show that there has been an abrupt break in the continuity of the phenomena which they measure and reflect; (3) still other series such as reserves of New York banks, and perhaps loans and deposits of such banks, have permanently lost their significance as indices of business conditions because of a change in economic organization or for other reasons. In consequence of these difficulties it was necessary, first, to discard some of the series previously used, and second, to make adjustments in the series retained to allow for the change of level that occurred during the period of transition 1914–18. The current index chart is based upon the following groups of series:

A. SPECULATION:
  - New York bank clearings.
  - Shares traded on the New York Stock Exchange.
  - Price of industrial stocks.

B. BUSINESS:
  - Bank clearings outside New York City.
  - Bradstreet's indices of commodity prices.

C. BANKING:
  - Rate on four-to-six months paper.
  - Rate on sixty-to-ninety day paper.

Certain adjustments had to be made in these series. For instance, our economic analysis led us to the conclusion that the level of commodity prices had definitely changed and that in order to get the significance of fluctuations at the present time, such fluctuations should be measured from a new level. Consequently such an estimate was made.[1]

The current index chart, then, contains three curves representing fluctuations of speculation, business, and banking, constructed from the available series in such a way as to make the curves as similar as possible to those of the period 1903–14. The fluctuations of these curves, therefore, are to be interpreted according to the rules drawn from the analysis of the period 1903–14, making due allowance, of course, for such changes in the economic structure or underlying conditions as appear to have taken place. The meaning to be derived from the current index, therefore, is to be obtained, first, by statistical analysis, that is, by observing the correspondence of current fluctuations to those of the period 1903–14, and second, by economic analysis, that is, by comparing the fundamental conditions underlying the present situation with those underlying apparently similar situations in the period 1903–14.

The precise manner in which forecasts are made on the basis of statistical analysis supplemented by economic analysis, is illustrated by the article entitled "Monthly Forecast of General Business Conditions, February 25, 1920" on pages 29–38 of this REVIEW.

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[1] The adjustments of the various series made necessary by the period of transition 1914–18 are explained in detail in the SUPPLEMENTS to THE REVIEW OF ECONOMIC STATISTICS for June and July, 1919.